Claims:

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1. A mucoadhesive polymer, characterized in that

- it is assembled of not more than 10 different monomers and
- comprises at least one non-terminal thiol group.

2. A polymer according to claim 1, characterized in that it comprises at least 0.05 µmol, in particular at least 0.1 µmol, of covalently bound thiol groups per gram of polymer.

3. A polymer according to claim 1 or 2, characterized in that the polymer is selected from thiolated copolymer of acrylic acid and divinyl glycol, thiolated chitosan, thiolated sodium carboxymethylcellulose, thiolated sodium alginate, thiolated sodium hydroxypropylcellulose, thiolated hyaluronic acid and thiolated pectin or derivatives of these thiolated polymers.

4. A polymer according to any one of claims 1 to 3, characterized in that the thiol groups are cysteine groups which preferably are bound to the polymer via an amide bond.

5. A polymer according to any one of claims 1 to 4, characterized in that it comprises at least one monomer

which comprises free thiol groups in the polymer.

6. A polymer according to any one of claims 1 to 5, characterized in that it has a total work of adhesion (TWA) of more than 120 µJ, in particular more than 150 µJ, to intestinal mucosa at pH 7.

7. A polymer according to any one of claims 1 to 6, characterized in that compared to the TWA of the non-thiolated polymer, it has an at least 30% increased TWA, measured at the pH optimum of the TWA of the thiolated polymer, preferably, a TWA which is increased by 50% or more, in particular by 100% or more.

8. A drug comprising a polymer according to any one of claims 1 to 7 and at least one active substance which is taken up via the mucosae.

9. A drug according to claim 8, characterised in that the active substance is non-covalently bound to the polymer.

10. A drug according to claim 8 or 9, characterised in that it is provided as a tablet, suppository, pellet, eye-, nose-, ear-drops or -gels, in a form to be administered by inhaling or in the form of micro(nano) particles.

11. A drug according to any one of claims 8 to 10, characterized in that it comprises active substances which are enhanced by thiol groups, preferably thiol-dependent enzymes, in particular papain and subtilisin.

12. The use of a polymer according to any one of claims 1 to 7 for preparing a drug.

13. The use of a polymer according to any one of claims 1 to 7 for preparing a mucoadhesive drug.

14. The use of a polymer according to any one of claims 1 to 7 for preparing a drug for peroral administration.

15. The use of a polymer according to any one of claims 12 to 14, characterized in that a drug is prepared whose active substance is released with delay.

16. The use of a polymer according to any one of claims 1 to 7 for preparing an agent for increasing the permeation of active substances, in particular of active (poly)peptide substances, through the mucosa, in particular through the intestinal mucosa.

17. The use of a polymer according to any one of

claims 1 to 7 for preparing an agent for intradermal, intraocular or intraarticular application.

18. The use of a polymer according to any one of claims 1 to 6 for preparing an agent for inhibiting enzymes, in particular zinc ion-dependent enzymes.

19. A method of preparing a polymer according to any one of claims 1 to 6, characterized in that base polymers which are assembled of not more than 10 different polymers, wherein at least one of the non-terminal monomers comprises a terminal functional group I that is free within the polymer, are reacted with thiol-containing compounds comprising at least one further functional group II, the functional groups I and II forming a covalent bond with each other during this reaction, optionally with the use of coupling reagents.

20. A method according to claim 19, characterized in that the functional group I is a carboxyl group, and the functional group II is an amino group, preferably a primary amino group, and that coupling reagents, in particular carbodiimides, are used in the reaction, an amide bond being formed.

21. A method according to claim 19 or 20, characterized in that a mercapto compound having a primary amino

group, preferably cysteine or a cysteine derivative, is used as the thiol-containing compound.

22. A method according to any one of claims 19 to 21, characterized in that the reaction is carried out at a pH of between 4 and 8, in particular at pH 5.5 to 6.5.

23. A method according to any one of claims 19 to 22, characterized in that the polymer prepared is adjusted to a pH of between 5 and 9, in particular a pH from 6.5 to 8.5.

24. A method for preparing a drug according to any one of claims 8 to 11, characterized in that a polymer according to any one of claims 1 to 7 is combined with an active substance.

25. A method according to claim 24, characterized in that at combining, the active substance is not covalently bound by the polymer.

26. A method according to claim 24 or 25, characterized in that the polymer and the active substance are co-lyophilized.

27. A method of improving the mucoadhesion of polymers, characterized in that laterally arranged thiol



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groups are introduced into these polymers, resulting in the formation of disulfide bonds between the polymer and the mucus layer.